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*mius* to the Ohio and Potomac, *L. ardens* to the Cumberland, Roanoke, and James.

XXV. Certain species have a peculiar northern and eastern range, occurring in the Upper Mississippi, in the head waters of the Illinois, Wabash, and Scioto, thence through the Great Lakes and New England, thence to South Carolina on the eastern slope of the Alleghanies. Such are *Perca Americana*, *Eupomotis aureus*, and *Amiurus catus*.

XXVI. Certain species have a peculiar northern and western range, occurring in the Middle States and in the Great Lakes and usually southward in the east to some point in Virginia or North Carolina, ceasing in the same latitude on both sides of the Alleghanies, but extending southwestward through the Mississippi Valley to the Gulf. Among these may be mentioned *Luxilus cornutus*, *Notemigonus chrysoleucus*, *Ambloplites rupestris*, *Apomotis cyaneus*. The last-named species, however, scarcely extends east of the Alleghanies.

XXVII. Certain species have a wide range north and south, either east or west of the Alleghanies, which do not cross that chain. Of these may be mentioned *Lepiopomus auritus*, *Enneacanthus obesus*, *Aphododerus Sayanus*, *Esox reticulatus*, etc., on the east, and *Haplodonotus grunniens*, *Hyodon tergisus*, *Noturus miurus*, *Noturus sialis*, etc., on the west.

XXVIII. The distribution of fresh-water fishes is dependent on (a) fresh-water communication ; on (b) character of stream, that is, of water, as to purity, depth, rapidity, vegetable growth, etc. ; on (c) the character of the river bed, as to size, condition, of bottom, etc. ; on (d) climate, as determined by latitude and by elevation above the sea ; and finally on (e) various unknown factors arising from the nature or the past history of the species in question, or from the geological history of the rivers.

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#### RECENT LITERATURE.

AMERICAN INSECTIVOROUS MAMMALS. — Dr. Coues has recently published a preliminary paper on the American Insectivora,<sup>1</sup> in which are described three new subgenera and five new species of *Soricidæ*.

<sup>1</sup> *Precursory Notes on American Insectivorous Mammals, with Descriptions of New Species*. By ELLIOTT COUES. Captain and Assistant Surgeon United States Army, Secretary and Naturalist of the Survey. Bulletin U. S. Geology and Geographical Survey, vol. iii. No. 3, pp. 631, 653. Department of the Interior: Washington. May 15, 1877.

The new subgenera are *Soriciscus* (subgenus of *Blarina*), *Microsorex* and *Notiosorex* (subgenus of *Sorex*). Four of the new species belong to the genus *Sorex* and the other to *Blarina*. This paper forms the first general notice of the genera and species of the American moles and shrews that has appeared since the publication of Professor Baird's well-known work on the Mammals of North America, in 1857 — twenty years ago. Much material has in the meantime accumulated, which shows that the number of species then admitted "require to be largely reduced," while others must be added, based on material since collected; but all the generic and subgeneric distinctions pointed out by Professor Baird "are confirmed." In 1861, according to Dr. Coues, Professor Baird again reviewed the subject, "making new and important determinations, which, however, have never been published." Many of these are inedited from Professor Baird's MSS.

In these "Notes," which are "to be considered as preliminary to a monograph of the American Insectivora, now in preparation," Dr. Coues recognizes four genera of moles (*Talpidae*), namely *Scalops*, *Scapanus*, *Condylura*, and *Urotrichus*; the last common to Western North America and Asia, the others strictly American. These are each represented by a single species, except *Scapanus*, which has two, the one (*S. Breweri*) eastern, the other (*S. Townsendi*) western. The *Scalops argentatus* of Audubon and Bachman (and also of Baird) is considered as merely a geographical race of the common eastern *S. aquaticus*.

Of the shrews (*Soricidae*), no formal list of species is given, but the genera and subgenera are discussed and characterized in detail, and their distribution is quite fully indicated. The genera and subgenera recognized are as follows: 1. *Neosorex*; 2. *Sorex*, embracing subgenera, (a) *Sorex*, (b) *Microsorex* (Baird, MSS.) (c) *Notiosorex* (Baird, MSS.); 3. *Blarina*, embracing the subgenera (a) *Blarina*, (b) *Soriciscus* (Coues). The genus *Sorex* alone occurs in the higher latitudes, where it is mainly represented by the subgenera *Sorex* and *Microsorex*, the latter having been recently ascertained to extend to the region of the Yukon River. In the high north the species are few, but the individuals are numerous, being comparable in point of number with the arvicolas and lemmings. *Sorex* proper occurs also throughout the whole of the United States, and is represented farther southward, in Mexico and Central America, by Coues's new subgenus *Notiosorex*. Near the northern boundary of the United States the species of shrews greatly increase in number; where we first meet with the genera *Neosorex* and *Blarina*, the latter being the most characteristic American genus of the family. *Neosorex* occupies a belt across the middle of the continent, from Nova Scotia and New England to Oregon and Washington Territory, and extends southward in the Rocky Mountains to New Mexico. *Blarina* extends far southward, but is represented in Mexico and Central America by only the subgenus *Soriciscus*, and has not yet been met with west of the Rocky Mount-

ains. The shrews are represented by the greatest number of species in the United States ; none occur in South America, where also the moles are apparently absent.

The new species described are (1.) *Sorex pacificus* (Baird, MSS. ined.), from Fort Umpqua, Oregon ; (2) *Sorex sphagnicola*, from Fort Liard (or vicinity) H. B. T ; (3) *Sorex (Notiosorex) Crawfordi* (Baird, MSS. ined.), from near Fort Bliss, New Mexico ; (4) *Sorex (Notiosorex) evotis*, from Mazatlan, Mexico ; (5) *Blarina (Soriciscus) Mexicana* (Baird, MSS. ined.), from Xalapa, Mexico.

RECENT ORNITHOLOGICAL PAPERS. — Among the many faunal lists of birds that have appeared so frequently during the last few years, none exceed in interest Mr. E. W. Nelson's recently published catalogue of the Birds of Northeastern Illinois.<sup>1</sup> The locality, owing to certain topographic peculiarities, is of a somewhat exceptional character. Its position, midway between the wooded region of the East and the treeless plains of the West, with the Great Lakes in close proximity, and warm river-bottoms extending up from the South, renders it, as Dr. Hoy long since termed the contiguous portions of Wisconsin, a kind of "four corners," where the bird faunas of four regions to some degree interblend. In summer some twenty species, characteristic of more southern latitudes, find here their northern limit of distribution, extending considerably further north here than on the Atlantic coast or in the intervening region. A dozen other species whose proper homes have been considered to be the region west of the Mississippi River or the great plains, still further west, have also been detected as casual visitors. Lake Michigan, with the chain of Great Lakes to the eastward, affords conditions favorable to the development of a decidedly maritime element in the fauna, through the occasional presence in or about its waters of most of the so-called sea-ducks and gulls, as the three species of scoter (*Edemia*), two species of eider (*Somateria*), the harlequin and the oldwife ducks, and the skua, glaucus, white-winged, black-backed, and kittiwake gulls ; and, among shore-birds, such species as the sanderling, the piping plover, and several sandpipers usually regarded as maritime. More unexpected, perhaps, than any of these is the sharp-tailed finch (*Ammodramus caudacutus*), known previously only as an inhabitant of the salt-marshes of the Atlantic coast. In the marshes of Northeastern Illinois, however, it takes on a slightly different phase of coloration, and has become otherwise so far modified as to be recognizable as a distinct race (var. *Nelsoni*), which has been honored with the name of its discoverer.

Mr. Nelson has recorded three hundred and sixteen species, with several additional varieties, as found within the limited area of scarcely more than two counties (Cook and Lake), a considerably larger num-

<sup>1</sup> *Birds of Northeastern Illinois*. By E. W. NELSON. Bulletin of the Essex Institute, vol. viii., pp. 90-155, April, 1877.